TEST: Microsoft System Center 2012 takes a giant step toward cloud management. **PAGE 26**

NETWORKWORLD

THE CONNECTED ENTERPRISE ≡ JULY 16, 2012

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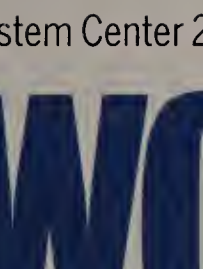
Enterasys a growth company, CEO says

Enterasys has a storied past, springing, as it did, from the loins of Cabletron, the network giant whose revenues once surpassed $1 billion, but then falling into disarray in the early 2000s. Enterasys today is a fast-growing private company and part of a joint venture with Siemens Enterprise Communications, giving it added depth and reach. *Network World* Editor in Chief John Dix recently caught up with company President and CEO Chris Crowell to learn more about what Enterasys is up to and where it fits in.

q&a



CHRIS CROWELL

You've been involved in this company in many capacities over many years, even heading IT at one point if I read it right.

I started at Cabletron in '92 to work on their management platform. When Cabletron split the company into four parts in 2000, I was running all technical parts of Spectrum — I was CTO, I was head of IT for Spectrum, everything technical was under me — and Spectrum became Aprisma after the reorganization. As a subsidiary we stayed with Enterasys for two years and then we were sold to The Gores Group, which is a private equity firm, then The Gores Group sold us to Concord Communications, and then

► *See* **Enterasys,** *page 14*

SPECIAL FOCUS

IT groups eschew BYOD

Workers to carry company-owned tablets

BY JOHN COX

AFTER SEVERAL years of struggling to accommodate personally owned smartphones, many corporate IT groups are taking the opposite tack with tablets: They're issuing corporate-owned iPads and Android devices. And partly as a result, some are seeing a jump in costs for mobile end user support, a need for redesigned custom applications, and a requirement for better device administration.

For this latest installment in "Tablets Go Corporate," we revisited three companies we covered in December 2011 — Bayada Home Health Care, Hawthorn Pharmaceuticals and The Ottawa Hospital — along with a new one:

► *See* **BYOD,** *page 16*

Smarter technology for a Smarter Planet:

How 3.8 million tailored messages made sales numbers look fantastic, too.

Japanese fashion retailer Start Today took an IBM smarter commerce approach to their business, helping increase annual sales on their Zozotown Web site by 54.2%. Their customer-centric focus uses Netezza® and Unica® to rapidly analyze massive amounts of data, letting them create personalized messages for each of their 3.8 million customers. Results? The solution helped increase the e-mail open rate by five times and the conversion rate by nearly 1,000%. Smarter commerce is built on smarter software, systems and services.

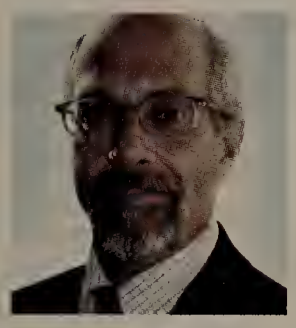
Let's build a smarter planet. ibm.com/personalize

IBM

FROM THE EDITOR | JOHN DIX

Appeals decision slams bank's security

The decision by the United States Court of Appeals for the 1st Circuit to overturn a lower court ruling that let a bank off the hook for losses incurred by a hacked customer has implications for both financial institutions (they need to do more) and their business customers (who typically lack legal protection from fraud that consumers enjoy).



While a lower court had granted Ocean Bank in Maine a summary judgment, saying it was not responsible for $345,000 that its customer Patco Construction lost in illegal bank transfers in 2009, the appeals court just reversed that judgment, saying the bank's security system was not "commercially reasonable," meaning Patco may indeed be able to go after the bank for some of the losses.

Time will tell what happens next, but the case is instructive. First, the details in a nutshell (you can read the whole decision at tinyurl.com/7rcbxnh).

Patco made weekly electronic funds transfers from the bank for payroll, always from a static IP address from computers at the company's offices in Sanford, Maine. The highest payment was always less than $40,000.

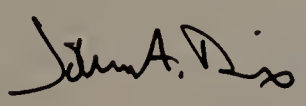
The bank, according to court records, had a system that created a risk profile for each customer based on "the location from which a user logged in ... how often a user logged in ... and the size, type, and frequency of payment order normally issued." Transactions generating risk scores over 750, on a range of 0 to 1,000, were considered high risk.

Beginning in May 2009, a hacker, logging in from an unrecognized device, from a different IP address at a different location, supplied the proper credentials of a Patco employee, including ID, password and the answer to three challenge questions, and started routing Patco money to a number of new accounts. The first transaction was for $56,594 and subsequent transfers jumped up to $90,000 and more.

"The risk-scoring engine generated a risk score of 790 for the [first] transaction, a significant departure from Patco's usual risk scores, which generally ranged from 10 to 214." But the bank wasn't monitoring the risk-scoring reports, the court says, and Patco wasn't set up to receive email alerts, a lose-lose scenario.

That, combined with the fact the bank had reduced the dollar level at which its system required challenge questions from $100,000 to $1 to snare low-value fraud, rendered the bank's system not commercially reasonable because the change meant answers were shared constantly, vastly increasing the chances of malware capturing the information before anti-malware tools could snoop out the intrusion. Traces of the Zeus worm were found on a Patco computer.

The key take-aways: For banks, having sophisticated systems in place doesn't do you any good if you don't make the associated process changes to capitalize on them; and for business customers, beware that banks don't necessarily cover you for fraud, but cases like this might begin to give you some leverage.



COVER ILLUSTRATION: HUAN TRAN

inside

JULY 16, 2012

peersay

BYOD: 'Right' or 'privilege'?

AS A FORMER 20-something, I fondly remember how right I thought I was about everything in my job, and how many "rights" I had that "the man" did not recognize. As a current 40-something, I now realize what an idiot I was as a 20-something (Re: "Young employees say BYOD a 'right' not 'privilege'"; tinyurl.com/82rznkv).

People who think that BYOD and managing their own security is a "right" are just as wrong as the people who think BYOD has no place in the enterprise and that everything must be locked down with military-grade security.

But even though the survey respondents are apparently misguided en masse, don't let that distract you from the point of the article: This *is* the mentality of the younger parts of the workforce, who have never known a day without social media, texting or whatever. And for IT professionals, managing that mindset is our challenge, and we cannot ignore that challenge (unless you intend to revise your IT hiring strategy to "under 35 need not apply"!)

Michael Carmack

Top schools and getting to the top

FRANKLY, THIS IS preposterous. How old are those execs with degrees? The world has changed a lot in the past decade and the effects of those changes are still shaking out (Re: "Why Mark Zuckerberg is a bad role model for aspiring tech execs"; page 10).

Having myself hired for advanced technical over the past 10 years, I can most certainly tell you that degrees are proof of nothing at all. I used to believe that they were a clear indicator of, at least, a modicum of discipline. That has turned out to be an errant assumption. In fact, the entitlement attitude that is often fostered by the college environment, has filled the technology and legal fields with under-qualified candidates who feel themselves too good to start in associate-level positions.

The most troubling thing here is that you're using a single flat metric (number of CEOs with degrees) to establish a causal link. You didn't even bother pay lip service to control of variables associated therewith (age, gender, geolocation, etc).

Josh Restivo

ACTUALLY, I THINK that this survey pretty much tells us that the particular school is not that important. The No. 1 school only had 5 out of 81. Percentagewise that is not significant (Re: "10 top colleges for tech CEOs"; tinyurl.com/8yqyd6a).

The story here is go to a school where you will learn what you need and then work hard.

Richard Allen King

I'M SORRY, BUT as a student at one of those top schools I have to disagree. Strongly (Re: "Tiger Mom was right about techie teens"; tinyurl.com/7gmvxg5).

OK, there's data that shows going to a top school is a predictor for becoming a tech CEO later in life (which may or may not have anything to do with being a "techie teen," since CEO is business side).

However, I'm disappointed by the unsupported claim that this "requires the kind of extreme parenting advocated by Amy Chua." No. It doesn't. Indeed, on the rare occasions that I've heard about Chua-level ridiculousness, it's prompted me to remind my parents that I love them and am incredibly grateful for the way they raised me.

More importantly, the article provides absolutely zero evidence to back up the claim. I would love to see data on parenting style as a predictor of getting into a top college — I suspect there may well be some correlation — but that's not what this article is about, and pretending otherwise could be damaging to the happiness of prospective students and their families, as well as the way that these schools and their students are viewed.

traimangcut

> Having hired for advanced technical over the past 10 years, **I can tell you that degrees are proof of nothing.**

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bits

One huge security breach down, another emerges: Yahoo

THE DUST IS just settling around the massive eHarmony website data breach, in which more than 1.5 million eHarmony password hashes were stolen and later dumped online by the hacker gang called Doomsday Preppers. And what do you know, now Yahoo has been victimized by a similarly devastating attack in which it appears more than 453,000 Yahoo user login credentials have been exposed after claims by a hacker group calling itself D33D Company that it broke into a Yahoo server, stole the credentials and dumped them. Some expressed shock – that Yahoo still had that many users with login credentials.

tinyurl.com/7mkxpf8

CONNECTING TO THE CLOUD FROM CERN

Wi-Fi Direct: Don't forget us!

THE WI-FI Direct standard may get a much-needed boost next year from work by the Wi-Fi Alliance to make it easier to use for both consumers and developers. The specification for peer-to-peer links among devices debuted in 2010 and has been delivered in some products, including the Samsung Galaxy S III smartphone, but it has yet to become a major platform for new uses of Wi-Fi across a wide range of devices. The alliance's Wi-Fi Direct Services task group, formed last month, plans to develop new software mechanisms to help devices and applications determine how they can work together, Wi-Fi Alliance Executive Director Edgar Figueroa said in an interview last week. Those efforts are on a fast track and should be completed within 12 to 18 months, he said. The Alliance is working on ways for devices to advertise their capabilities to each other and tell the user what they can do. With this approach, "The connection doesn't come first, the application discovery comes first," Figueroa said. ***tinyurl.com/87t8j4m***

If loans sound too good to be true ...

A CRIME ring using fake websites and online ads to lure thousands of victims into their loan-fraud scheme that robbed them of millions of dollars has been disrupted by federal authorities. A federal grand jury in Buffalo, N.Y., last week returned a 62-count indictment against 32 defendants residing in Michigan, New York and Canada accused of defrauding what could be more than 2,000 victims who lost $2.7 million in a loan-fraud scheme carried out since 2005. It was all based on fake Internet advertising that often mimicked the names of actual financial firms to make it seem legitimate. ***tinyurl.com/cb86b3e***

BlackBerry 10 in 2013: Worth the wait?

RIM CEO Thorsten Heins, speaking to shareholders last week, revealed that the recently delayed BlackBerry 10 devices will rely heavily on improved BlackBerry Messenger social network software including advanced video chat. But will that be enough to keep BlackBerry shops from switching allegiances? The financially struggling firm has taken a beating lately by industry watchers for its decision to push delivery of its next-generation BlackBerry smartphones into 2013 even as Apple is likely gearing up to deliver a new iPhone before then. ***tinyurl.com/boa6oly***

Higgs boson researchers' next challenge: the cloud

HOW DID European researchers working on the Higgs boson recently make one of the most revolutionary physics discoveries in recent decades? From an IT perspective, they relied on a good old-fashioned grid computing infrastructure, though a new cloud-based one may be in the offing. For the first couple of years after the grid computing infrastructure was created, it handled 15 petabytes to 20 petabytes of data annually. This year, CERN is on track to produce up to 30 petabytes of data. "There was no way CERN could provide all that on our own," says Ian Bird, CERN's computing grid project leader, and that's where cloud computing could come in. "But at this point, we're just not sure of the costs and how it would impact our funding structure." ***tinyurl.com/774dce8***

U.S. presidential campaigns ready for mobile onslaught

WEEKS BEFORE the U.S. Republican and Democratic national conventions that will anoint each party's nominee for president, special equipment to boost cellular signals in each party's venues is already nearly installed. The thousands of participants and armies of

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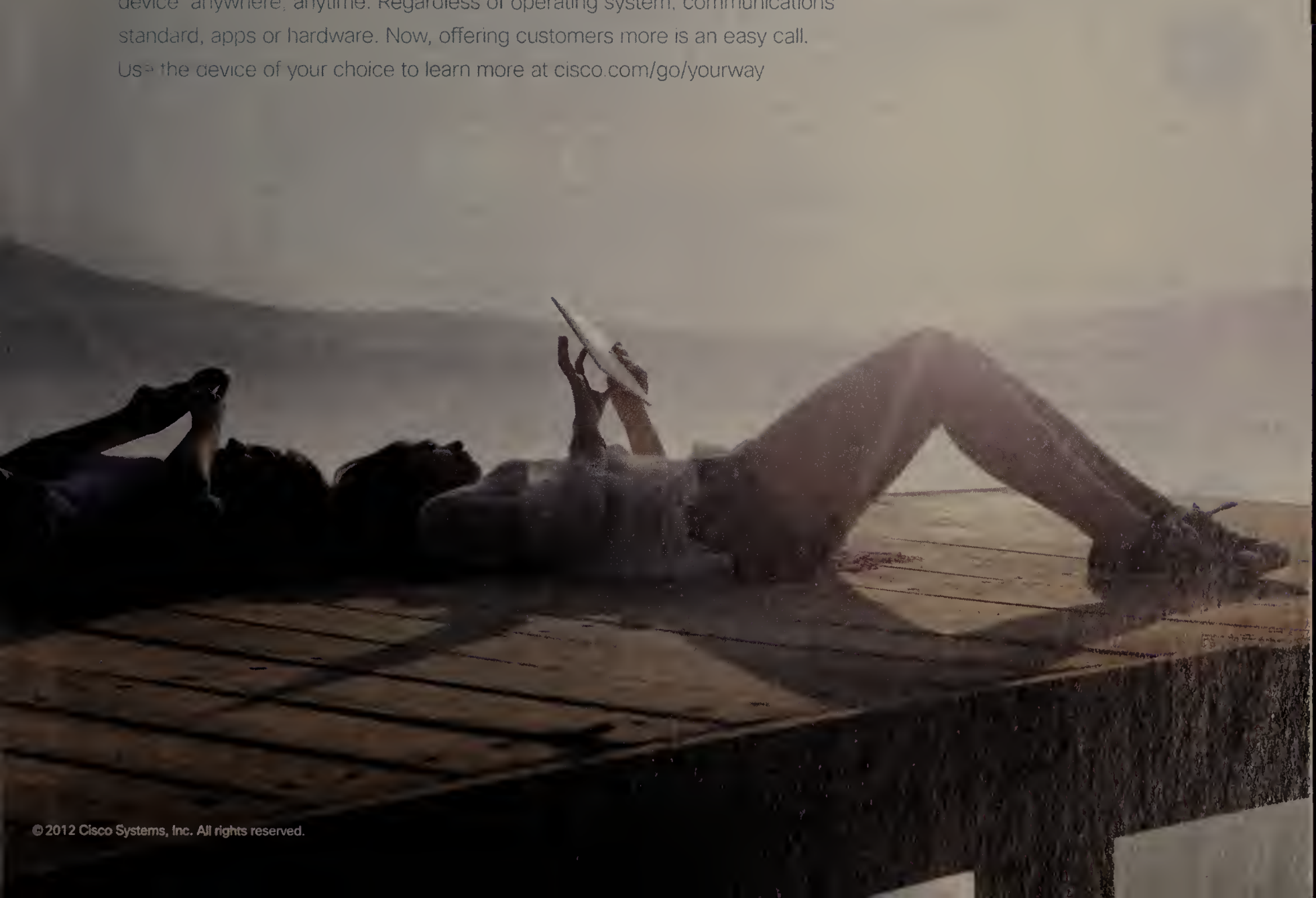

GOOD | BAD | UGLY

Geeks unite at Comic-Con 2012

good

NOTHING BRINGS nerds together like the promise of seeing the original Luke Skywalker, Mark Hamill, in a panel discussion, or dressing up in their favorite superhero costumes, and this past weekend's Comic-Con International 2012 in San Diego had that and more. More than 140,000 attendees took in an extended weekend full of the latest on comics, action figures, anime, TV shows/movies and more at the annual confab.

Déjà vu for Salesforce.com customers

bad

SALESFORCE.COM SUFFERED a significant service outage on Tuesday, July 10, less than two weeks after another serious set of system problems. The cloud-based customer relationship management vendor's systems are divided into many instances around the world, each serving customers in different geographic regions. Seven instances went down at some time or another on Tuesday, starting with NA1, NA5 and NA6 in North America, according to a notice posted on Salesforce.com's system status page. Power problems might have been to blame. The problems suffered in June were caused by a fault in Salesforce.com's storage tier.

Google Play not all fun and play

ugly

SECURITY RESEARCHERS from Symantec last week said they have identified two malware apps on Google Play that used a multistage payload delivery system in order to remain undetected. The apps, which have since been removed by Google, masqueraded as two games — "Super Mario Bros." and "GTA 3 — Moscow city." "Both were posted to Google Play on June 24 and since then have generated in the range of 50,000 to 100,000 downloads," Symantec security researcher Irfan Asrar said in a blog post. Once installed, the apps downloaded an additional package called Activator.apk from a Dropbox account and prompted the device owners to install it. This secondary Activator app sent SMS messages to a premium-rate number located in Eastern Europe, after which it asked to be uninstalled. The fact that the malicious payload was delivered in multiple stages is probably why the apps managed to remain undetected for so long on Google Play, Asrar said.

reporters that will flock to both events are expected to produce enough calls, tweets, videos and other mobile traffic to bring an average cellular network to its knees. So TE Connectivity is deploying DASs (distributed antenna systems) all around the facilities where the parties will meet. ***tinyurl.com/7lu9bd6***

As if it isn't bad enough PCs can beat you at chess and checkers

AN AI system that can watch two-minute videos of some simple board games being played, learn the rules, and then play against human opponents has been developed by Lukasz Kaiser, a researcher at Paris Diderot University. While the program is still unable to accuse you of cheating and leave the game in a huff, the level of sophistication displayed by Kaiser's invention is nonetheless highly impressive. Even more impressive is the fact that Kaiser's first tests of the AI — on tic-tac-toe, Connect Four, Go-Moku, Pawns and Breakthrough — were conducted on a laptop with a single-core processor and 4GB of RAM. ***tinyurl.com/6nyceer***

IT VIDEO

Microsoft Imagine Cup

Highlights from the 10th annual Imagine Cup in Sydney, which brought together 350 young people to tackle social issues.

tinyurl.com/6vlu522

New Windows on the way

WINDOWS 8, the next major upgrade of Microsoft's operating system for PCs, tablets and laptops, will be released to manufacturers in August and will ship commercially in October, the company said last week. Microsoft had previously said that the OS would be commercially available before the end of the year but hadn't given a firm shipping date. Microsoft also said it will release to manufacturers (RTM) its next-generation operating system for the server, Windows Server 2012, next month. ***tinyurl.com/6vkldy5***

PARITY BITS

9% Android

Percentage of mobile Wi-Fi connections registered by Cloud Nine Media, which runs ad-supported Wi-Fi networks in more than 5,000 airports and hotels, in a recent 30-day period.

24% iPhone

Why Mark Zuckerberg is a bad role model for aspiring tech execs

BY CAROLYN DUFFY MARSAN

WANT TO run a successful high-tech company? Don't drop out of college.

The myth of the brilliant Ivy League student who starts a business in his dorm room, drops out of school, and goes on to run a successful high-tech startup for many decades to come is essentially just that: a myth. Despite a few high-profile exceptions — such as Mark Zuckerberg and Bill Gates — the vast majority of CEOs running successful U.S. high-tech firms have college degrees, and more than half have at least one graduate degree.

We analyzed the educational backgrounds of the 50 highest paid and most powerful CEOs in the U.S. tech industry, and what we found is that only three of them — Michael Dell of Dell Computers, Mark Zuckerberg at Facebook and Larry Ellison at Oracle — are college dropouts. And, of course, their success is the result of founding their own companies as opposed to being hired by a board of directors to run an existing tech firm.

"I've met as many successful tech CEOs who have dropped out college as I've met folks who have won the lottery," says Professor Jerry Luftman, managing director of the Global Institute for IT Management, who holds a doctorate in information systems from Stevens Institute of Technology. "There are always going to be exceptions to any rule. But if you are a betting person, you would increase your odds of becoming a tech executive if you have a college education and a senior executive if you have a management degree."

Jeff Hocking, senior client partner at executive recruiting firm Korn/Ferry International, says he doubts Zuckerberg would even get an interview for a CEO job at another tech company.

"There are a few people like Bill Gates who were college dropouts and were founders of successful tech companies, but none of these people came into the CEO role from somewhere else," Hocking says. "I have placed a few non-CEOs without degrees, but they have had 20 to 30 years of a successful career. It would be very difficult for me to encourage my son, who is a freshman in college, to drop out and start a company."

Of the 50 top high-tech CEOs, 27 completed not only an undergraduate degree in computer science, engineering or business, but also hold a master's degree in one of these fields. Seven of these CEOs completed two post-graduate degrees. Three high-tech CEOs hold a Ph.D., while one holds a law degree.

Indeed, it appears that the motto for aspiring high-tech CEOs should be: the more formal education, the better.

Consider the example of Dan Hesse, CEO and president of Sprint Nextel. Not only does he hold a bachelor's degree in government and international studies from the University of Notre Dame and an MBA from Cornell University, he also holds a master's degree from the Sloan School of Management at Massachusetts Institute of Technology, where he won the Brooks Thesis Prize for writing the outstanding master's thesis.

Another highly educated CEO is Paul Jacobs, CEO and chairman at Qualcomm, who holds three degrees from the University of California at Berkeley College of Engineering: a bachelor's, a master's and a doctorate, all in electrical engineering. Jacobs subsequently won the Berkeley Engineering Innovation Award in 2008, and he endowed a professorship at the school. In terms of his field of study, Jacobs followed in the footsteps of his father, Qualcomm co-founder Irwin Jacobs, who also holds a bachelor degree from Cornell University in electrical engineering, along with master's and doctorate degrees in the same field from Massachusetts Institute of Technology.

Similarly, Dominic Orr, president and CEO of Aruba Networks, holds not only an undergraduate degree in physics but also two graduate degrees in the sciences — a master's in physics and a doctorate in biology — from California Institute of Technology, where he was named a Distinguished Alumni in 2010.

Jacobs and Orr are unusual because few tech companies want to hire Ph.D.s as CEOs, Hocking says. "Tech companies constantly look down on Ph.D.s," Hocking says. "You'd think there might be more Ph.D.s in tech CEO roles like there are in biotech or medical devices, but you rarely see them in tech companies. Seventy to 80% of the tech CEOs we place have engineering degrees with an MBA. ... That's the sweet spot."

Of our sample of 50 CEOs, 17 have undergraduate degrees in computer science, computer engineering or electrical engineering. Another six have undergraduate degrees in other types of engineering, while three have mathematics degrees and three have degrees in physics. More than 10% of high-tech CEOs continued on as graduate students in computer-related fields, with six holding master's degrees in either computer science or electrical engineering.

Another popular path to a high-tech CEO job is to study business in college, with 15 of the 50 high-tech CEOs holding undergraduate degrees in economics, finance, accounting or business administration. Additionally, more than one-third — 19 out of 50 — have master's degrees in business administration or management.

"If you're starting off with technical responsibilities, obviously you need a technical base," the Global Institute of IT Management's Luftman says. "But we know, because we have done enough research over the years, that a technical education isn't enough for any career, whether it's at a vendor or user company. You need the right balance of technical, business, management and interpersonal skills to be a successful executive." ■

5 Successful Techie DROPOUTS

Here's a list of high-tech CEOs who didn't don a cap and gown except for a commencement address, yet they managed to make billions of dollars in the tech industry.

Michael Dell
Dropped out of the University of Texas at Austin to start Dell Computers.

Larry Ellison
Dropped out of University of Illinois and later the University of Chicago, held various programming jobs and eventually co-founded Oracle with Bob Miner, a U of I grad with a mathematics degree.

Bill Gates
Dropped out of Harvard to start Microsoft.

Steve Jobs
Finished six months at Reed College, held various engineering jobs, and started Apple Computer with fellow college dropout Steve Wozniak, who completed one year at University of California at Berkeley.

Mark Zuckerberg
Dropped out of Harvard to start Facebook.

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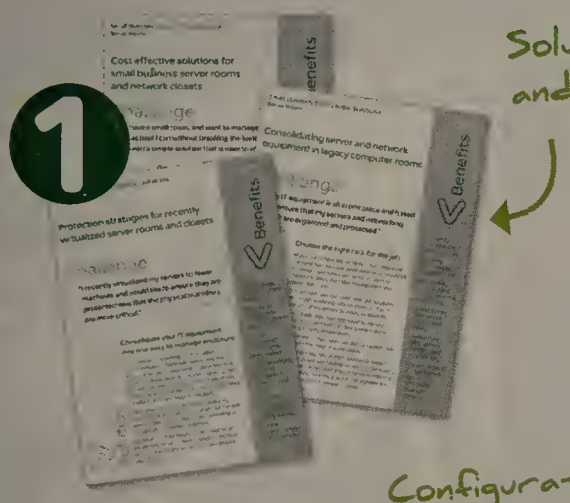

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Microsoft will revamp Windows encryption keys

Microsoft security change could cause problems for legacy systems, applications

BY TIM GREENE

STARTING NEXT month, updated Windows operating systems will reject encryption keys smaller than 1024 bits, which could cause problems for customer applications accessing websites and email platforms that use the keys.

The cryptographic policy change is part of Microsoft's response to security weaknesses that came to light after Windows Update became an unwitting party to Flame malware attacks, and affects Windows XP, Windows Server 2003, Windows Server 2003 R2, Windows Vista, Windows Server 2008, Windows 7 and Windows Server 2008 R2 operating systems, according to the Windows PKI blog written by Kurt L. Hudson, a senior technical writer for the company.

"To prepare for this update, you should determine whether your organization is currently using keys less than 1024 bits," Hudson writes. "If it is, then you should take steps to update your cryptographic settings such that keys under 1024 bits are not in use."

Even with preparation, updated machines may face issues such as error messages when browsing to websites with SSL certificates that are below the minimum 1024. They may also face problems enrolling for certificates when certificate requests use a 1024 or less key, the blog says. Installing Active X controls signed with 1024-bit or less signatures will also fail.

The same is true for installing applications signed with less than 1024-bit signatures. The exception is those applications signed before Jan. 1, 2010, which will be allowed by default, the blog says.

The use of cryptographic keys shorter than 1024 bits makes them too vulnerable to brute-force attacks, Microsoft says, something that is widely recognized and dealt with, but not universally.

The biggest challenge for businesses getting ready for the change will likely be with legacy, in-house applications that interact with Windows platforms, says John Pironti, president of IP Architects and the security track leader for Interop.

Microsoft and many other software vendors can readily update the rules under which they accept certificates, he says. It may not be that easy to alter the rules used by custom applications, and in some cases IT security pros may not recall all the places where smaller key sizes are used. "That box just works and nobody thinks about it," he says. "A lot of cases will be, 'Oh, we forgot,' or, 'We don't know how to upgrade that cert.'"

Dealing with such cases manually will require time and money, he says. In addition to changing settings, some hardware may need to be replaced because larger keys sap more processing power. On maxed-out machines, the added computation could cause unacceptable delay.

Overall, though, the transition should be more of an annoyance than anything else, Pironti says. As certificates issued to businesses expire, they are generally replaced with certs using longer keys, he says, so there might not be so many that remain in use.

There are commercial tools for finding and automatically replacing certificates that are too short, Pironti says. Among them is Director made by Venafi, which contributed to the latest NIST Information Technology Laboratory bulletin on certificate authority compromise and fraudulent certificates.

NIST currently has set a deadline of Dec. 31, 2013, for when entities ought to stop using 1024-bit RSA and DSA encryption. "However, since such keys are more and more likely to be broken as the 2013 date approaches, the data owner must understand and accept the risk of continuing to use these keys to generate digital signatures," according to a special publication called "Transitions: Recommendation for Transitioning the Use of Cryptographic Algorithms and Key Lengths," published in 2011.

Microsoft is updating its operating systems in the wake of the Flame malware used to spy on networks in Iran. Flame exploited Microsoft's use of the MD5 hashing algorithm in authenticating Windows Update. Microsoft officially disallowed its use in 2009 but failed to weed it out of its own products, particularly Terminal Server Licensing Service. Researchers figured out how to compromise MD5 using what they call collision attacks to obtain fraudulent certificates that are accepted as real.

Since Flame was publicized, Microsoft has started a campaign not only to shut down use of MD5 but also to beef up other areas that have not fallen victim to attackers.

The August update will follow on yesterday's security advisory revoking trust for 28 certificates that fail the company's own recently upgraded security standards for the public key infrastructure underpinning Windows Update. ■

▶ **Enterasys,** *from page 1*

Concord Communications was bought by CA. One of my claims to fame is I sold Spectrum/Aprisma three times. ...

I joined Enterasys in 2006 after The Gores Group took the company private and brought in a management team to rebuild them. So I joined doing the same thing I was doing at Aprisma, everything technical. And then about midway through 2008 Gores partnered with Siemens AG to create the joint venture of Siemens Enterprise Communications and Enterasys, Enterasys being the network part of that and Siemens Enterprise Communications being voice and unified communications and video.

And how would you summarize the Enterasys portfolio today?

Access switching, data center core switching and then the management platform, which includes security.

You've been living in a very competitive industry for a long time. How do you position the company today?

We have a technical differentiation and we have a company differentiation. On the technical side it is one fabric. End-to-end visibility and control and policy management, whether you're at access switching, wired, wireless, all the way through the data center. All open standards, but a central management platform that treats the entire system like a system, and that makes us really different.

And as a company we go to market differently. We really believe, and it's our ethos, there's nothing more important than our customers, and we have a different customer service support model than anybody in this space. We're 100% in-source support. The technical support engineers work side-by-side with the actual development engineers. And so when you call us up and you get technical service, it is by far better than any other vendor.

Everyone likes that word "fabric" these days, but how do you define it?

I think the definition of fabric varies from vendor to vendor. If people specifically talk about the data center it's really about any-to-any connection — high performance, low latency, any-to-any connection. For us fabric is about that policy-based visibility and control throughout the infrastructure. Really our model is not far off from software defined networking. A centralized engine that actually creates the policy control capabilities, but then implementation is pushed down into the infrastructure. So we localize that control capability as close to the user or the application or server as possible, but there's a centralized management platform. And that really is different, and we do it across the wired and the wireless environment.

COMPANY Enterasys
HEADQUARTERS Andover, Mass.

10 consecutive quarters of year-over-year growth

Revenues for next 12 months: ≈ $400 million

Revenue CAGR: 9% to 10% over three years, but includes legacy products nearing end of life. Future growth will be higher, driven by new products.

Access and data center product three year CAGR: 35%+

Wireless product three year CAGR: 50%+

"Locally" meaning in every switch?

In every switch. But the differentiated capabilities for us is that unified control mechanism that we can implement at a very granular level. There are 40 to 50 attributes we can use to make policy decisions. On who you are, what you're doing, where you're doing it from, what time of day you're doing it, what type device you're doing it from, etc.

So is this the heart of your BYOD stuff?

Yes.

What kind of opportunity does BYOD represent?

For certain environments, we were already doing many pieces of this. So our recent release Mobile IAM brought a lot of things together, created new reporting capabilities, new visibility capabilities, some new automation and some open APIs so we could integrate with other applications, like MDM applications.

But opportunities depend on the vertical market. There are certain verticals where doing device profiling and managing what users are doing what on the network and when is extremely important, and then there are other environments where they want everything wide open.

Take higher education. One institution could grant full access, let everybody do whatever they want, even gaming, because they want to attract students. But another institution may want to say, "OK, if you're gaming, you get this quality of service. If you're accessing the institution applications, then you get this prioritization."

At the core it's all about identity?

For the Mobile IAM solution, that's exactly what we're doing. It doesn't matter if it's a user. It could be a security camera, it could be a printer, but how we implement Mobile IAM is specific to that environment. If you bring a smartphone or a tablet into the environment, I want to be able to discover it. I want to be able to profile that and then I want to be able to give you a certain level of capabilities to access corporate networks to do certain things.

Some will just implement the visibility part of it, while others will implement the control part too. The visibility part is extremely important because I want to know what you're doing and when you're doing it in certain environments.

I'll give you an example. Anderson County Schools in Kentucky is one of our customers that implemented this solution. They actually allow students to take tests on their laptops in the classroom. Well, the test is on the server in their data center so you need them to be able to access that, but you don't want them to be able to access the Internet during the test. But the teacher in that same room, you want to allow them to have complete access. So there it's user based, role based, and time of day access to the infrastructure.

Do you do better in some industries than others?

The fastest growing verticals for us are education, healthcare and state and city/local government. Those environments are where you're starting to see the explosion of bring-your-own-device and wireless LAN access. But you're also seeing it in retail and hospitality. But for us, those top ones are our fastest growing verticals. And two fastest growing segments are data center, and that's being driven by virtualization and big storage, and the access layer, because of tablets and smartphone computing.

Given you're dealing with customers that have a lot of installed base from other network players, what's your avenue in?

One of the things we talk about with one fabric is you don't have to adopt it all at once. You can get the benefit of many of the pieces without doing it all at once. So you can appreciate we have many installations that are mixed environments, where Cisco could be in the core or Juniper. We also have shops where we are the core and you have somebody else at the access layer. So you can do this piecemeal. ■

► **BYOD,** *from page 1*

Boston Scientific, which began deploying the very first iPad within weeks of its release. Now it has 5,300 corporate-owned iPads distributed worldwide.

Except for Bayada, all have deployed iPads as a corporate standard. Bayada deployed the original 7-inch Samsung Galaxy Tab and is now adding the newer Tab 2. That fits with the iPad's overwhelming dominance in enterprise deployments. Boston Scientific also has a tablet bring-your-own-device (BYOD) program, but limited to iPads, currently with about 1,000 devices.

Together, these four companies are a microcosm of the way tablets, and mobile computing in general, are overturning the PC paradigm, and doing so with astonishing rapidity. "This is a disruptive technology," says Dale Potter, CIO at The Ottawa Hospital. "We're ripping PCs out of the environment faster than we're installing them. This may be the death of the PC."

Tablets are more likely to be corporate-owned than are smartphones, even when a company is willing to support employee-owned tablets. Data from a recent survey of 556 companies in 45 countries by Aberdeen Group found that overall, 43% of the sample were willing to support any personally owned tablet; 29% allowed selected tablets, but more than one-quarter — 28% — banned all personal tablets. By contrast, 51% allowed any personally owned smartphone to be used for business; 32% allowed selected phones (from a corporate-approved list), and only 17% banned all personal smartphones for business use.

Companies aren't abandoning BYOD policies for tablets, but "tablet adoption won't be like smartphone adoption," says Aberdeen's Andrew Borg, research director, enterprise mobility and communications. Big companies especially are more likely to impose policy-based limits and constraints to ensure compliance with corporate security and management requirements, he says.

"When you move into network and file access in [tablet] apps, you need to worry about much more than you do for email access," says Rich Adduci, CIO at Boston Scientific in Boston. "You're accessing proprietary information, so greater control is a necessity. It's hard to get that [control] in a BYOD environment."

For Boston Scientific, control comes from an early decision to create a management infrastructure as part of the iPad deployment. The company chose SAP's Sybase Afaria for provisioning mobile devices, and the Sybase Unwired Platform for device management. "We knew we would have a large deployment," Adduci says. "We knew we couldn't do that if we didn't have device provisioning and control in place." At the same time, he's realistic about the current state of the art for device management. "As with any new technology, there will be things missing from it, compared to the much more mature device management capabilities of the desktop."

Annual average IT labor cost per user

2013 ● $339
2012 ● $294
2011 ● $229

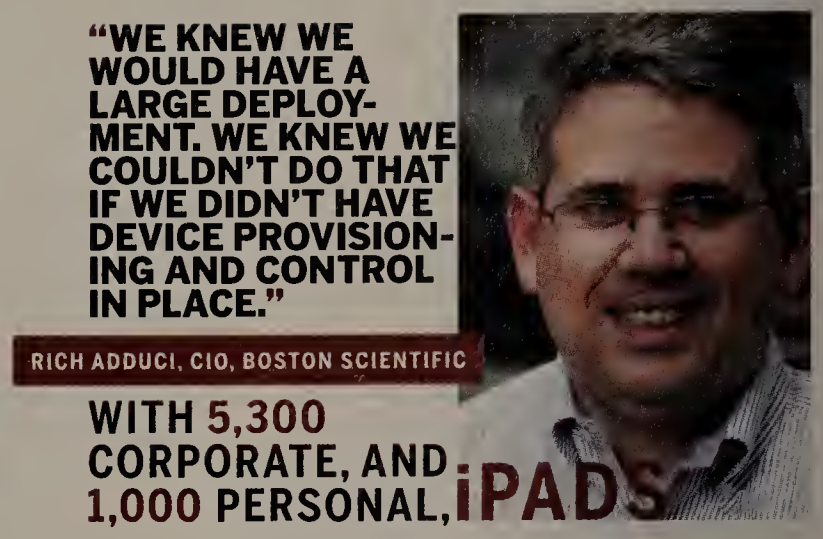
All four companies are in very different places with regard to managing tablets. The Ottawa Hospital pushed hard to deploy iPads quickly, in order to support a critical computerized physician order-entry project (replacing plans for laptops). Management wasn't a top priority initially, though the hospital eventually adopted MobileIron's mobile device management software. But much tablet administration is still largely manual: when the annual influx of nearly 1,000 residents showed up at the hospital recently, their iPad registration, configuration and setup required a "small army" of IT staff to do it, CIO Potter says.

"We did it by brute force, stubbornness and hands-on support," says Potter. "Today, I'd caution people to put some thought into this beforehand. You need a mobile strategy to address security and privacy concerns, management issues, etc."

Bayada Home Health Care has a skeleton management infrastructure for its nearly 2,500 Android tablets. It continues to rely heavily on its main cellular carrier, T-Mobile, for help in deploying the Samsung Galaxy Tabs, and monitoring data plan usage; and on its key software vendor, Homecare Homebase, which accelerated Bayada's Android native app development to create a native tablet app with a secure password connection to the Web backend. If tablets are lost or stolen, the IT group can "blow up the SIM card," says Andrew Gentile, Bayada's associate director for the home health operating policy office.

With a much smaller iPad deployment, Hawthorn Pharmaceuticals uses Fiberlink's MaaS360 software for provisioning and management. The software vendor routinely collects anonymous usage data from customers and shares with them the results, to identify mobile device trends and best practices, says Hawthorn Director of Information Technology Clay Hilton.

Device management should be somewhat simpler with iOS 5, which added support finally for over-the-air firmware updates directly to the iPad. The last upgrade to Version 5.0 "was extremely painful," Hilton says.



Demanding more from mobile carriers

Enterprises are demanding more from their mobile carriers as tablets roll out, according to Scott Snyder, president and chief strategy officer for Mobiquity, which specializes in technology services for enterprise mobile projects. "Tablets are on a completely different demand curve for data usage, compared to smartphones," he says.

Bayada negotiated with T-Mobile to minimize or sidestep completely overage charges for cellular data plans. More enterprise accounts are renegotiating data deals, and many are working out pooled plans, which gives more flexibility for employees who might use more or less than the individual monthly limit, according to Snyder. "Five gigabytes for $50 a month is a typical consumer plan," he notes. "But one HD video conference for one hour will take 1 gigabyte. Users with [the new iPad's] Retina display will want high definition, but that will drive data usage and charges through the roof."

Another option is negotiating with carriers for Wi-Fi services, so tablet users can make use of Wi-Fi connections when available without cutting into monthly data plans. But Snyder says "right now, Wi-Fi is getting worse and worse, as you can see at an airport." Enterprises need to know what Wi-Fi services their carriers can offer, or support, and how well it performs. ■

For more on how these companies are coping with broken tablets, read the expanded version of this story online. **tinyurl.com/7lafrqn**

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TOOLS

A better Todo List with Backbone

JavaScript, which has absolutely nothing to do with the Java language, has become a remarkable platform for elegantly solving programming problems and delivering effective solutions.

Mark Gibbs' Gearhead

Has JavaScript got problems? Sure, like every other language ever invented it solves problems and brings new problems with it, but it seems the JavaScript world has considerably more juice than other programming platforms. Combine JavaScript with HTML5 and the juiciness quotient goes up by an order of magnitude!

I keep coming across tools and programming examples that use JavaScript and quite a few of them are incredibly useful. For example, the Backbone library which aims to clean up JavaScript coding by the use of "models." The models contain "the interactive data as well as a large part of the logic surrounding it: conversions, validations, computed properties, and access control. ... In a finished Backbone app, you don't have to write the glue code that looks into the DOM to find an element with a specific id, and update the HTML manually — when the model changes, the views simply update themselves."

To get a better appreciation of what can be done with Backbone, check out the Backbone examples page that highlights some amazing projects that use Backbone and many of which work at enterprise scale.

One of the examples that caught my attention is the first one listed, the Todo List application. I've been using a free online service called Tada List since it was launched in 2005. Published by 37Signals to address the lack of browser-based "to-do" lists at the time, the company has recently decided to retire the project as such services are no longer hard to find. The problem with this is that Tada List was really simple and did the job pretty much as I wanted it to. I use a Tada list as a place to keep notes about products and services I need to follow up on and all of the bells and whistles of something like Basecamp lists are overkill for my purposes.

Combine JavaScript with HTML5 and the **juiciness quotient goes up by an order of magnitude!**

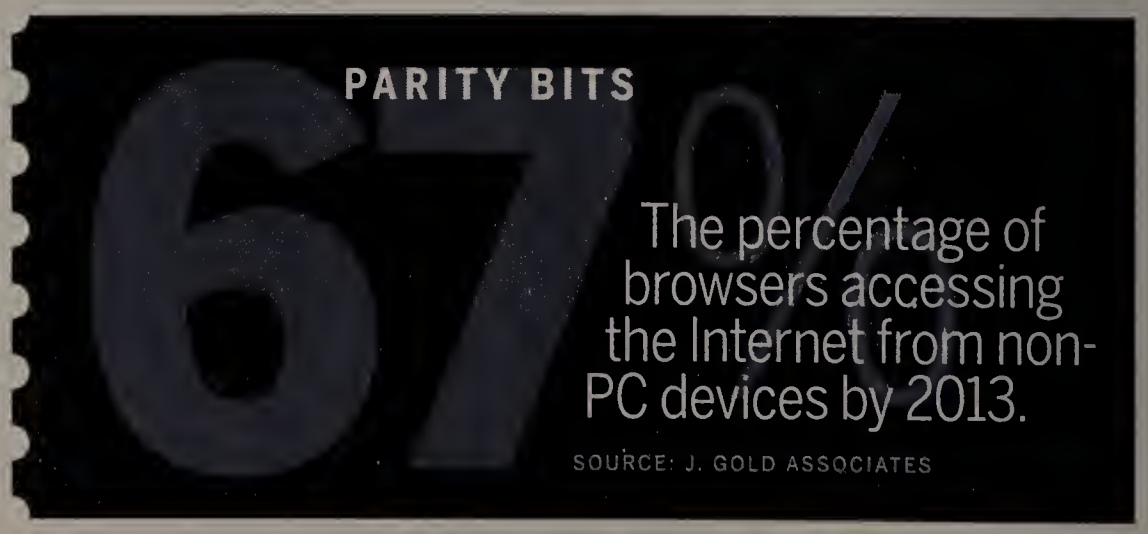
The Backbone-based Todo List by Jérôme Gravel-Niquet provides an almost identical service but uses Backbone for the fancy footwork and HTML5 localstorage to keep the list data locally. Also called "DOM Storage," localstorage is a method for browser-based code to persistently store data locally as named key/value pairs and is now a standard browser feature. Implemented in all of the major browsers (including IE 8+, Firefox 3.5+, Safari 4.0+ and Chrome 4.0+), localstorage allows data to persist across sessions and, unless a browser app sends the data to a server, it is private and completely local.

This new Todo List capitalizes on this feature and, while you can load the Web page, CSS and JavaScript libraries from anywhere, the actual list data is kept on your computer.

If you want to make your own version examine the source for the app, then save the source, the CSS file and the libraries to wherever you please and modify the source so all of those components can be loaded correctly. With very little effort you can change the entire look and feel of the list and Backbone, which takes a little learning, actually makes the code orders of magnitude easier to understand and maintain.

If you have discovered any other useful tools like this, let me know. ■

Gibbs is has a lot of to-do's in Ventura, Calif. Send him a new list at gearhead@gibbs.com and follow him on Twitter (@quistuipater) and on Facebook (quistuipater).



PHYSICAL INFRASTRUCTURE: A CRITICAL FACTOR IN CLOUD DEPLOYMENT SUCCESS

Growing demands on the data center, ongoing scarce resources and the need for greater flexibility are driving companies toward the cloud. Migrating the data center to the cloud is an increasingly attractive option as companies struggle to do more with less. Cloud deployments—whether public or private—offer the promise of reduced costs, simpler implementation and maintenance, as well as improved business agility.

Many companies are in the planning stages of cloud deployment, and additional growth in private and hybrid cloud deployment is expected over the next two years. According to a recent IDG Research Services survey of more than 100 IT executives, more than one-third (39 percent) of respondents are currently utilizing cloud, while 48 percent are in evaluation, consideration or planning mode. Nearly one-quarter (24 percent) are using cloud on an enterprise basis.

As companies begin to pilot cloud or deploy it in earnest, data-center managers are discovering that migrating the data center to the cloud is not as simple as they had imagined. Cloud does reduce to some degree the amount of computing hardware a company needs for its data center. But many fail to consider that cloud requires a robust physical infrastructure foundation in order to maximize the expected benefits. Many executives are discovering too late that they did not focus enough on physical infrastructure design prior to the move to cloud. This can jeopardize cloud deployments before they begin.

Your data center is a mission-critical facility. If you are considering moving your data center to public or private cloud, it is important to take the time to design a centrally managed and integrated logical and physical infrastructure that will support your migration.

While virtualization, a key technology of cloud computing, can enable IT to reduce its population of hardware such as servers, storage devices and switches, that equipment still requires a core infrastructure base consisting of server racks, cabinets and cables. Without a strong foundation, the payback from cloud can diminish, as many data center managers have discovered. Recent research shows that data center managers may not realize cloud does not eliminate the need for solid physical infrastructure design, and solid design is in fact a critical success factor.

Just 15 percent of IDG survey respondents consider themselves "very successful" in designing their physical infrastructure to maximize cloud benefits. Companies that do not make physical infrastructure design a top priority when preparing for cloud deployment have experienced negative outcomes as a result of reactive infrastructure changes, including increased cost (55 percent), slower implementation times (41 percent) and increased power and cooling needs (38 percent), according to the survey.

Thorough physical infrastructure planning pays off in terms of lower cost and fewer outages. The top benefits of solutions that help prepare infrastructure for cloud deployment include minimizing unplanned outages, reducing infrastructure management costs, increasing time available for strategic activities and faster provisioning, according to survey participants. Other benefits of planning ahead: reduced infrastructure complexity, better operational control, improved confidence in layer 1 stability and a documented and approved provisioning process.

Panduit Solutions Can Help

Panduit has developed the industry's most comprehensive approach to an intelligent data center solution. It includes advisory and design services, data center infrastructure management (DCIM) software and hardware, energy-efficient cabinets, high-speed data transport (HSDT), preconfigured infrastructures and a physical infrastructure foundation, all aspects of which are CloudReady. Panduit's solution streamlines the process of designing, specifying, installing and managing the increasingly complex physical infrastructure required for cloud computing. ■

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For more, visit www.networkworld.com/whitepapers/panduit-solutions-1

GADGETS

Personal cloud server needs work; MovieNite streams movies and more

Keith Shaw's Cool Tools

THE SCOOP

MyCloud Mini personal cloud server

by Akitio, about $104

▶ **What it is:** The MyCloud Mini is a network-attached storage device (without the actual storage — you have to install either a 2.5-inch internal HDD or attach a USB external storage drive) that connects to a router to provide file storage that can be accessed via the cloud, either through a browser or mobile device. Once connected, the browser-based software includes the ability to share content to friends (or via social networks), as well as stream content (photos, music, videos) from across the Internet (a.k.a. the "cloud").

▶ **Why it's cool:** If you plan to use this as a centralized storage unit for your personal content that can be accessed by multiple devices within a home network, the MyCloud Mini can handle this task. Connecting to the device is quite easy through a browser — just log in to myakitio.com and type in the name of your server (initially, you type in the media access control address, but then you can change it) in order to connect. The interface via the browser is very Mac-like, with colorful icons and easy-to-understand locations for accessing content stored on the drive.

You can also connect to the MyCloud Mini via mobile app — I tried the iOS app on the iPhone, but there's also an Android app available. The app makes accessing the unit easier — you don't have to remember the Web address, and once you log in initially, you can have the device remember your password and have it go right to the file area. The app also adds some additional functionality — for example, a camera app lets you take photos with the iPhone and store the images directly to the MyCloud Mini, saving space on the iPhone.

Likewise, a Voice Memo app lets you record audio with the phone and save the audio file (AIF format) to the cloud server. In addition, you can also easily download files from the server to the mobile phone at the push of a button. Akitio has done a really good job with the mobile app.

▶ **Some caveats:** With network-attached storage (NAS) functionality built directly in to new wireless home routers, it might be easier to attach an external drive to the router in order to access the same functionality. I found it annoying that I needed to attach my own storage to the unit — there are home NAS units that already have storage built in. Streaming media content from the MyCloud Mini, even over the local wireless network, was tedious — I never got videos to play correctly (it would start and then just stop), and even streaming music had lag and burps. While I didn't attach other devices to the network, such as a TV or Xbox, I'd be afraid that those devices would have similar problems.

The instruction guide and setup manual are also sparse — casual users are likely to be frustrated quickly, although IT pros might be able to get through all of the features without too much pain. There's some real potential here — the software and mobile apps shine, but the streaming speed over a local network and the cloud needs to be improved. If Akitio can bundle this with a hard drive and make those performance improvements, consumers might be impressed with a device that can provide them with centralized storage for their media content.

▶ **Grade** ★★½ **(out of five)**

Akitio's MyCloud Mini shines on software and apps, but performance issues may frustrate users.

THE SCOOP

MovieNite streaming media player

by D-Link, about $80

▶ **What it is:** Like similar units from Roku and Western Digital, the D-Link Movie-Nite box connects to your TV and Internet connection, providing you with access to Internet movies, music and TV services, including Netflix, Pandora, YouTube and Vudu.

▶ **Why it's cool:** The unit is very easy to set up and get connected to those services (provided you already subscribe to them); quality via HDMI to an HDTV is quite nice. The unit provides an AV cable to connect to older TV sets as well.

▶ **Some caveats:** An HDMI cable is not provided, so you have to purchase it separately for your HDTV. Also, no wireless connection, which means you'll need to connect via Ethernet through a wireless bridge or powerline adapter. There's also a lack of services compared with Roku and Western Digital (which could change as D-Link signs deals with additional providers).

▶ **Grade** ★★★½

Shaw can be reached at kshaw@nww.com. Follow him on Twitter: @shawkeith.

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EXPERTS FACE OFF *on the* HOTTEST TOPICS

What to look for in network fabrics

Minimal disruption

Jason Nolet, vice president, Data Center Networking Group, Brocade

THE ETHERNET FABRIC MARKET HAS grown rapidly in the past year. Market interest, the range of offerings and customer adoption are all on the rise. If you have been looking into a fabric you've likely developed expectations about what you want it to do that your existing network can't. However, with the variety of offerings on the market, it can be difficult to figure out how to focus the decision process.

Brocade has more than 550 customers that have deployed Brocade's fabric-enabled VDX Data Center Switches since their release in November 2010. Here is what our customers tell us is most meaningful to them, and likely would be to you as well.

First off, they relish the automation features we've built in and the simplicity of building a fabric:

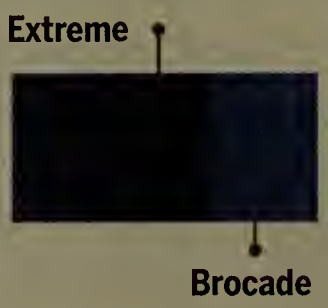
- Connect the switches together, and trunks form automatically with no configuration required.
- Switching from "classic" (STP-enabled) mode to fabric mode involves a single command.
- With all links active, the total number of devices required in service is greatly reduced, simplifying the overall network and reducing both capex and opex significantly. Customers have cited savings of hundreds of thousands of dollars in the first year of operations.
- "Almost perfect load balancing," in the words of one industry expert, due to unique per-packet load-balancing that draws on techniques that are part of our storage fabric heritage.
- 15% to 20% reduction in time spent on basic network management through automation of common tasks.

"It just works," one customer said. Brocade fabrics are self-aware and self-healing, automatically redistributing traffic in the event of a link outage to avoid disruptions or performance degradation. Additional links can be added non-disruptively, with rapid fabric reconvergence time. Human error, the most common cause of downtime, is reduced with the automation of common functions.

Despite the fact that Ethernet fabrics are a relatively new phenomenon, some fabrics, such as Brocade's, are based on very mature, reliable

► *See* **Brocade,** *page 24*

Who has the best advice on fabrics?



Cast your vote and see comments at tinyurl.com/bwncfgk

No vendor lock-in

Shehzad Merchant, vice president of technology, Extreme Networks

A DATA CENTER ETHERNET FABRIC requires certain attributes such as high performance, low latency and resiliency. However, a key aspect of any fabric is the network operating system (NOS) and the software protocols and management layer required to make the fabric high performance while reducing operational overhead. The evolution to technologies such as VXLAN/NVGRE, as well as the move toward software defined networking (SDN), all point to the need for a high performance fabric that is open and interoperable, and that does not lock the network into a vendor-specific proprietary technology.

A high performance network fabric requires both the right network switches and the right network architecture. Some key attributes for high performance network switches are:

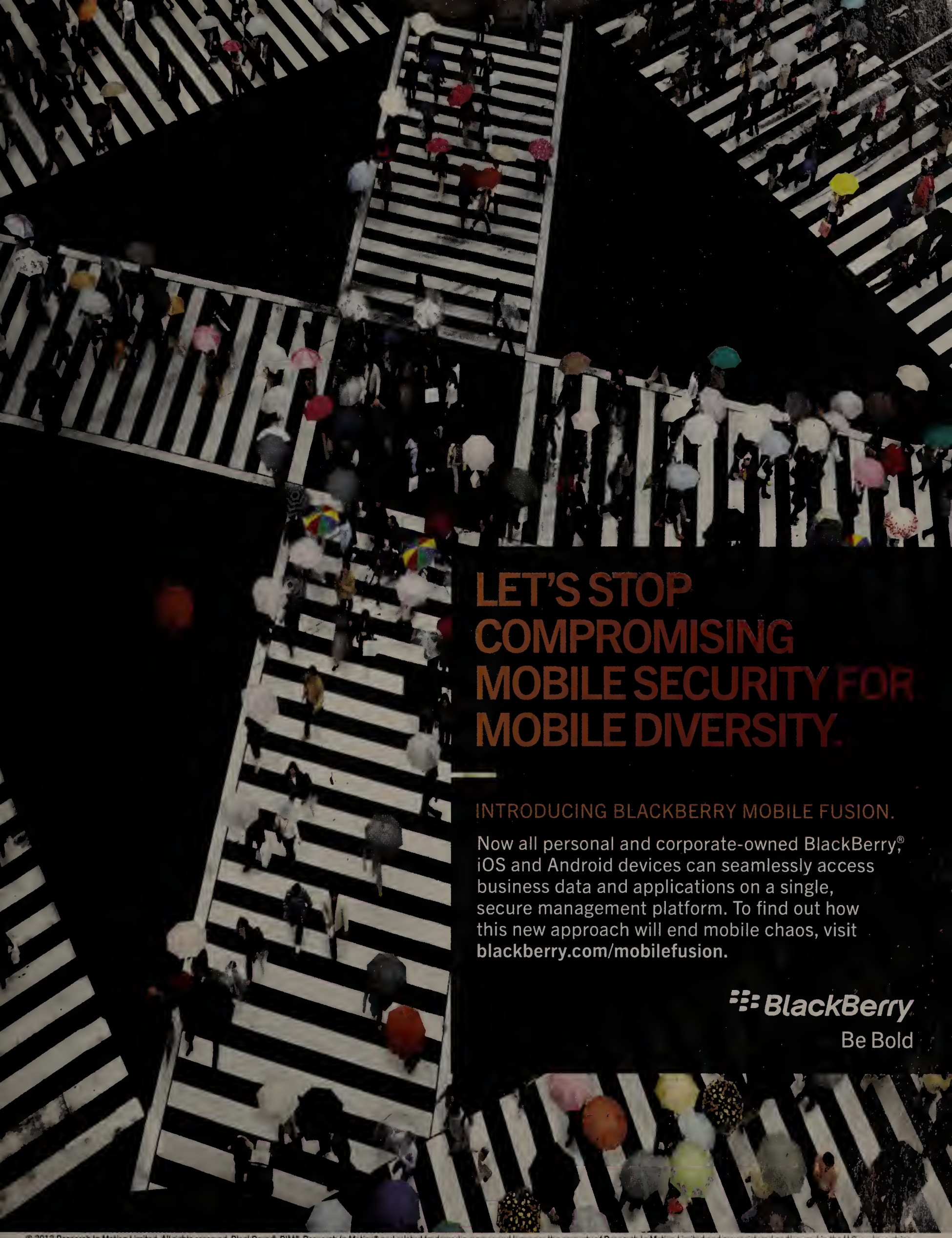
- High density, high fan-out and non-blocking. High density 10G at the server network edge, high density 40G in the network core.
- Cut-through forwarding on both chassis and stackables for low latency.
- Dynamic adaptive per port/queue buffer thresholds for good burst absorption capabilities. This is important when dealing with high performance storage along with big data Hadoop and MapReduce-type technologies to address incast-type scenarios and temporary congestion in the network.
- Single-copy egress pipeline replication for multicast traffic to improve multicast performance and reduce multicast latency variance across ports.
- Support for LAN-SAN convergence with DCB capability (PFC, ETS and DCBX).

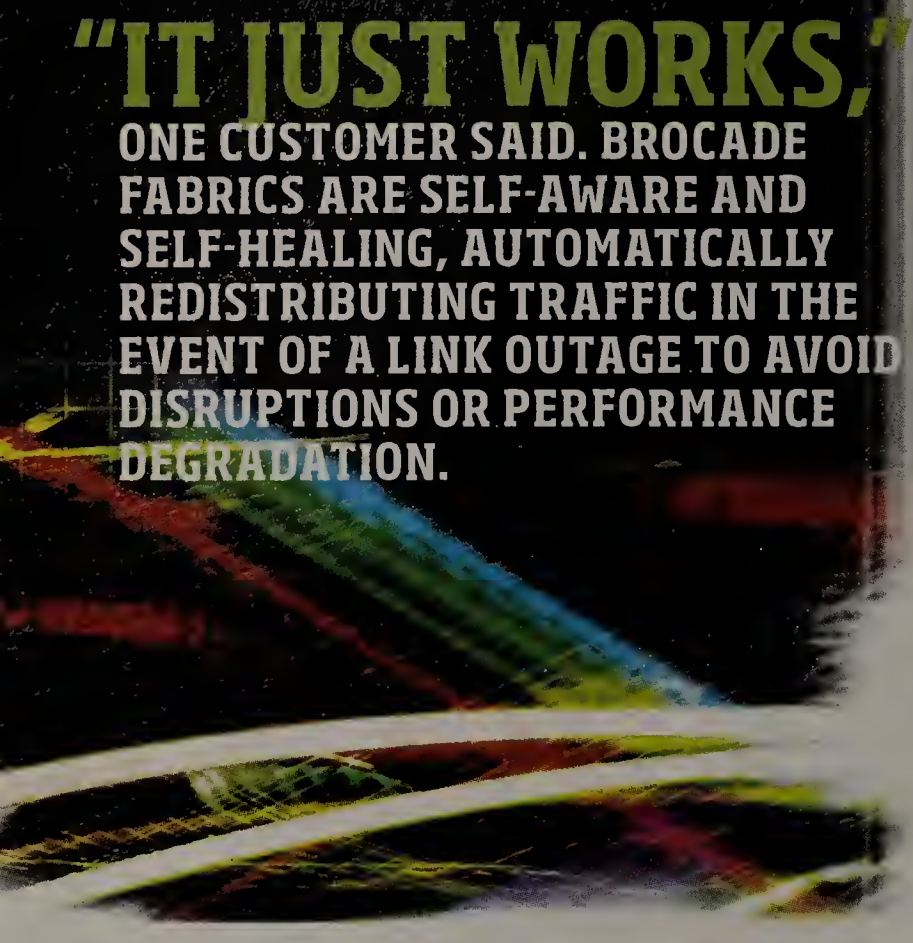
And when it comes to network architecture, there are many attributes to consider. You should strive for as few tiers as possible to reduce latency, oversubscription and management overhead. For example, a high availability chassis that has 700-plus 10G Ethernet or 175-plus 40G.

Ethernet non-blocking ports will inherently require fewer network switches than one that has a fewer number of ports when it comes to fan-out.

You should also look for active-active

► *See* **Extreme,** *page 24*





▶ **Brocade,** *from page 22*

technology.

Customers also want minimal disruption. An access layer-based approach, like Brocade's, directly addresses the pains that drive many customers to look at fabrics to begin with: the latency and unnecessary load on core switches that is incurred for the east-west traffic patterns that are increasingly common. Most other fabrics are based on much more expensive core switches which in many cases do little to simplify existing network architecture or improve east-west traffic performance.

We allow customers to deploy fabrics progressively, workload by workload or pod by pod, without necessitating a redesign of their overall data center network. Some switches, such as Brocade's VDX series, can be deployed in traditional STP mode first, and then switched to fabric mode when the customer is ready. Traffic is passed seamlessly to and from upstream switches running STP, with the fabric appearing as a single switch to the rest of the network. Fabrics with these capabilities are the best choice for targeted experimentation with fabric technologies with little operational risk and relatively low capital outlay.

Also, the right fabric does not require an entirely new set of skills and training to manage. CLI commands should be familiar, even to professionals whose primary training is on equipment from other vendors. Most find they can set up and operate a fabric easily with little instruction.

Altogether, our customers have found that partnering with Brocade has helped them work through network inflexibility and brittleness, improve application performance, and increase service velocity while significantly reducing capital outlays and ongoing operating costs. ■

Brocade networking solutions help the world's leading organizations transition smoothly to a world where applications and information reside anywhere.

▶ **Extreme,** *from page 22*

redundancy. Multi-system Link Aggregation (MLAG) is a technology that builds upon traditional LAG and works in conjunction with LAG to provide active-active redundancy across servers, network and storage, as well as other network infrastructure such as firewalls and application delivery controllers.

MLAG does not require any new encapsulation and hence can work with most existing infrastructure. While technologies such as TRILL or SPB can also provide benefits of active-active redundancy, there is little to no support for either TRILL or SPB in servers, hypervisors or storage devices. In other words, MLAG/LAG can provide full end-to-end active-active redundancy, today. And as newer technologies such as VXLAN/NVGRE come into play, MLAG/LAG can continue to work seamlessly in these environments.

Another important factor to consider is that, while Ethernet fabrics today tend to be Layer 2 oriented, in the near future with VXLAN/NVGRE, the fabric can move toward a segmented Layer 3 fabric with equal-cost multi-path routing. By avoiding vendor lock-in into a proprietary single-vendor Layer 2 fabric technology, the network can evolve and take advantage of these advancements without requiring a "rip and replace" strategy.

A network fabric discussion would not be complete without mention of storage and convergence. The move to a converged fabric is becoming a reality with 10G/40G Ethernet (and in the near future 100G Ethernet) and Data Center Bridging technology now becoming commonly available both in network switches and converged network adapters. As technology evolves to accommodate Layer 3 fabrics, it will be important to use storage technology that is both routable and easy to virtualize. Technologies such as iSCSI provide an increasingly attractive alternative to legacy Fibre Channel storage for just those reasons.

A high performance Ethernet fabric is only as effective as the network operating system running on it. A single, mature and modular NOS that runs across the network switch infrastructure significantly reduces overhead and simplifies day-to-day management. Furthermore, a NOS that integrates with the virtual machine environment can significantly reduce the operational overhead. For example, the NOS needs to support virtual port-based configuration, "follow the VM"-type policies, and complete network-based VM lifecycle management, across multiple hypervisor technologies.

Finally, consideration needs to be given to the fact that the data center fabric is evolving rapidly. The fabric needs to support the evolution toward a scalable, segmented Layer 3 network without requiring "rip and replace." The NOS also needs to support SDN-oriented technologies such as OpenFlow and OpenStack.

In conclusion, customers need to consider not just high performance Converged Ethernet switches, but also an open and interoperable network architecture, along with a mature, modular and extensible network operating system. By taking a holistic view to network fabrics, a more robust, high performance and cost-effective fabric can be deployed to address customer needs as they evolve. ■

Extreme Networks is a technology leader in high performance Ethernet switching for cloud, data center and mobile networks. The company has more than 6,000 customers in more than 50 countries. More information on Extreme is available at http://www.extremenetworks.com.

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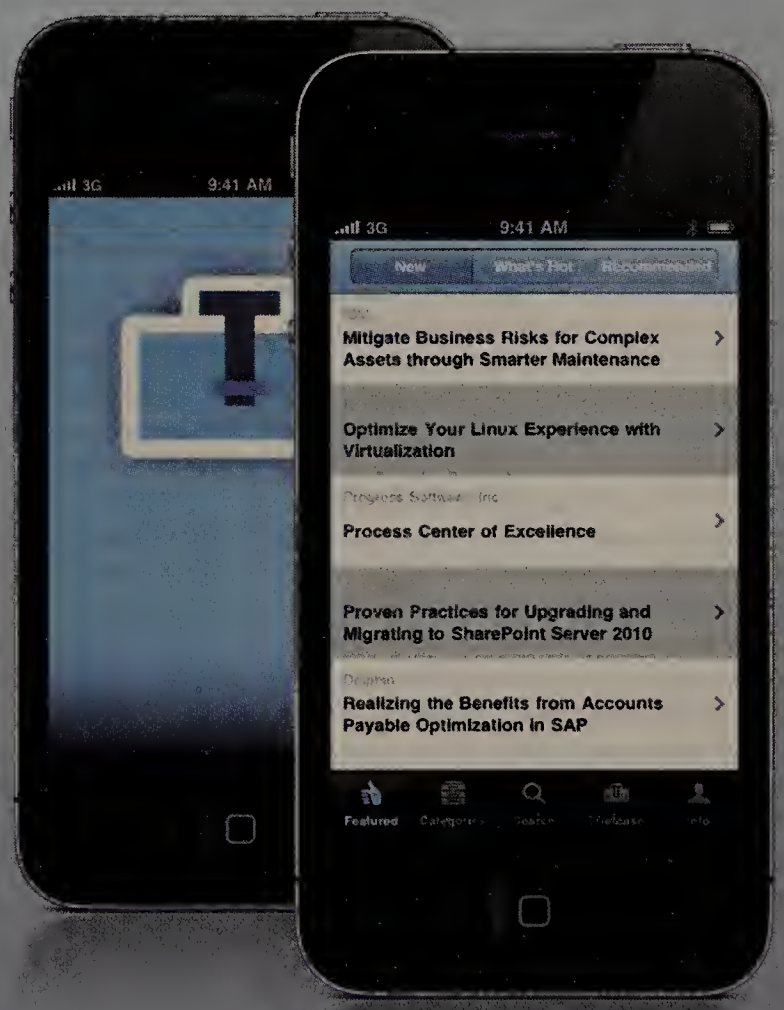

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System Center targets the cloud

Microsoft delivers sophisticated management modules for enterprise-level virtualization and cloud environments

BY TOM HENDERSON

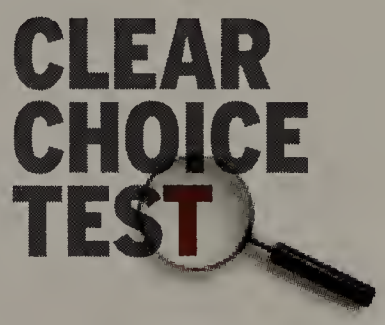
With the revamped System Center 2012 suite of management tools, Microsoft has launched a powerful new weapon in the battle to control the virtualized data center and the cloud, both private and public.

Although it's a totally gruesome/forklift installation (yet better than before), for the first time in recent memory, all of the modules that comprise System Center are in nominal revision sync, and have increased their coverage to include the competition.

Private cloud is well covered in System Center 2012, although the focus is poised more toward Windows Azure, Microsoft's public cloud platform. Virtualization is also heavily covered, and although the emphasis is on Microsoft's Hyper-V hypervisor, there is also support for many heavily used features, but not all features, of Citrix XenServer and VMware ESXi/vSphere.

Systems Center 2012's coverage includes plenty of other non-Windows devices. You can deal with Windows Phone, Apple's iPad/iPhone iOS 5, and perhaps that pesky department with the Android phones, too — if there's a link to Microsoft Exchange Server controls. Microsoft is trying to change its Windows-only stripes. It's the most egalitarian coverage we've seen from Microsoft, and while the added coverage is welcome, it does add to the complexity level.

We divide our review into two parts. One roughly covers SC 2012: Orchestrator, the upgraded workflow tool that Microsoft bought and presented as Opalis vNext, along with SC 2012: Configuration Manager.



In an upcoming review we'll examine SC 2012: Service Manager, App Controller, Virtual Machine Manager and Data Protection Manager. Microsoft Endpoint Protection Manager is excluded — we have insufficient resources to pound it.

Infrastructure you'll need

We needed a lot of hardware in the form of VMs to make the full installation of all modules work. At minimum, a server/VM instance with 40GB of disk and reasonable memory is needed for each module. Underneath System Center 2012 activity is commonly SQL Server 2008 R2 as an engine (see our review of SQL Server 2012, Page 30). Many modules also seem to need their own hefty hardware (or healthy VM instances).

None of the modules are recommended to be run on Active Directory Domain controllers, necessitating additional instances. Microsoft wants to play a dominant role in the enterprise, and we feel that for many Microsoft-centric organizations, System Center could be a good, if non-trivial, choice.

Each module needs planning prior to installation. Modules cannot be reasonably expected to be installed without the Unified Installer, which also presumes you've done your homework. Homework includes understanding the prerequisites of each module (they're all slightly different) and having prerequisites installed, like the aforementioned SQL Server, and in most cases, IIS with various mandated tunings/settings. We found this the hard way. Use the Unified Installer after homework is done.

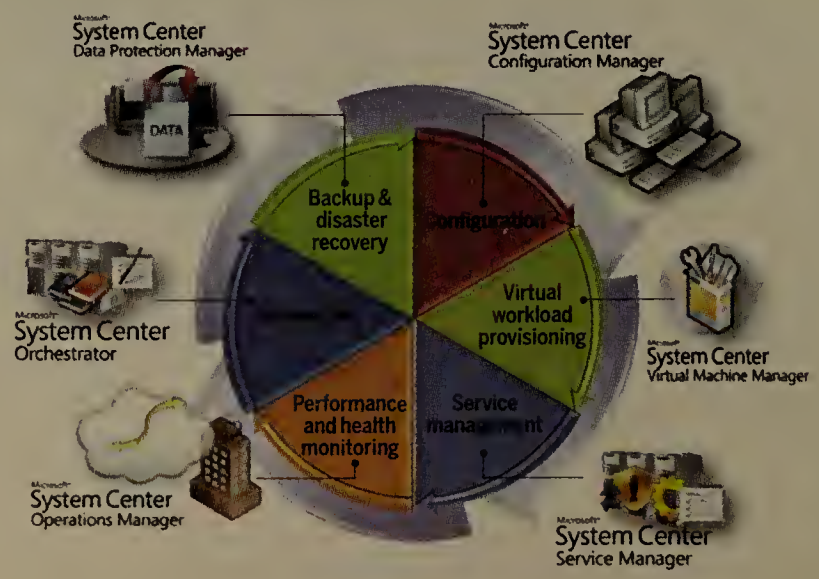
Despite the heterogeneity of the System Center 2012 pieces, Microsoft clearly advances its own products first, as might be expected. More interestingly, it also adds features that clearly attempt to replace premium features of its competition — while managing competitive virtualization and cloud infrastructure. System Center 2012 works especially well, and advances the viability of Microsoft's Hyper-V infrastructure. As an example, SC 2012: Virtual Machine Manager offers strong management of virtualization instances in the contexts of private cloud and public cloud (which usually means, but is not confined to, Microsoft's Azure cloud resources).

As an example, the SC:VMM modules can do bare-metal installations utilizing Hyper-V, populate the hypervised bare metal with Windows or Linux instances (SUSE instances, but Red Hat, too, if you must).

SC:VMM can control VMware ESX/ESXi instances, too, but many VMware features found in VMware vSphere 5 still require

Meet the modules

With System Center 2012, all of the modules have been updated and are in sync to deliver management of enterprise applications and infrastructure.



MICROSOFT DIVIDES THE NEW MODULES INTO **THREE BROAD CATEGORIES**: APPLICATIONS, SERVICES AND INFRASTRUCTURE.

1. **Applications** include App Controller, Operations Manager (ex-MOM/Microsoft Operations Manager) and Service Manager (overlap).
2. Under **services**, you have Service Manager and Orchestrator.
3. And for **infrastructure management**, there's Virtual Machine Manager, Operations Manager and Configuration Manager.

vSphere 5. The benefit gained is largely control nexus for common tasks used in managing VMware-based instances. The same can be said for XenCenter and Citrix's XenCenter management.

Orchestrator

System Center 2012: Orchestrator is perhaps the most compelling module as it's an advance of Opalis, the IT process automation tool Microsoft acquired in 2009. Orchestrator makes runbooks, through a Runbook Designer, which amounts to an understandably customizable script generator that goes deep into Microsoft infrastructure to do complex jobs. The Orchestrator module must have, at minimum, a server largely dedicated to the work of building, managing and deploying the runbooks, which are objects that contain the instructions that deploy resources for en masse distribution.

Runbooks are workflow instructions, and there are already online runbook resources available that can be added to the examples that come with Orchestrator. The runbooks are scripts, and scripts can be edited and replaced with locally specific variables that tailor runbook activities which are instructions that the runbook/script will execute.

In turn, the scripts can be stored, or placed into a workflow timeline that can themselves be triggered by events, such as a progressive installation of an application. We discovered too late that we could have used Orchestrator to install SQL Server, establish the role of IIS and make some of the modifications needed to make Orchestrator work.

We could import runbooks, or use Runbook Designer to get a WYSIWYG view of "stock" scripts, or ones we built from scratch. Dependencies, and the specific names of assets and resources, can be easily filled in to the process to make Orchestrator develop and execute some fairly complex jobs. Runbook Servers then do the work, and the first Runbook Server added becomes the Primary Runbook Server, and subsequent servers can be largely autonomous. This allows branches, or clouds, to have largely autonomous script executions for workflows of installations, updates and other work.

We tested several runbooks that performed application installation between servers in our lab and our network operations center at nFrame in Indianapolis. We queued them into life by a simple user batch click. The event is then logged (Microsoft warns that the logging database can become huge; why doesn't it use a syslog, we wondered?) and there are many ways to control runbook executions, in terms of the number of concurrent jobs that are allowed, permissions to use while doing various parts of the job(s), and the kinds of activities that can be performed — including the customizable activities.

Orchestrator comes with Integration Packs that are the connection points to make runbooks that control Active Directory as well as third-party software. Currently offered are integration packs for HP's iLO/OA server management, HP Operations Manager software, HP Service Manager, IBM's Tivoli Netcool/OMNIbus infrastructure management suite, and VMware vSphere. As we're too small a shop for the hardware network management apps, we didn't test these. But we did take a long look at VMware integration, as we're very familiar with it.

The Orchestrator module doesn't replace vSphere, but it knows how to automate many daily grind and grunt tasks. After mapping a lot of vSphere information (addresses, machine names, host platform information, hypervisor datastores), we were able to do the job of moving an ESXi VM from one machine to another. But it took a lot of work.

There are limitations to the control of Orchestrator Integration Packs in VMware environments, particularly when it comes to being able to use the decision intelligence of vSphere 5 to make choices about storage and resource management. Until Orchestrator gets an API that can stealthily grab more infrastructure conditions information to move VMs around to load/storage balance ESXi-hypervised servers, they miss an important part of vSphere's control mechanism — which is a VMware secret sauce. Nonetheless, the Orchestrator integration controls for VMware were found compelling, if daunting to put together.

On a good day, part of the use of Orchestrator is execution of packaged "normal" events, while the other part of the day is spent monitoring logs. There is a lot of initial planning that is required to put Orchestrator to use, and then, like every new hammer, there's a stage where we wanted to craft runbooks to do all sorts of things, some of which really don't need automation. There is a reporting and documentary test that applies discipline to what runbooks do — a task is performed according to a runbook, which plays nice with consistency and auditing. It's nonetheless non-trivial to put Orchestrator to work — you have to train large parts of the symphony.

Configuration Manager

Like Orchestrator, Configuration Manager requires planning and forethought before the first installation can commence. Configuration Manager uses SQL Server 2008 R2 as its engine, and like Orchestrator, it needs to live in a separate instance from an Active Directory domain controller. Indeed, as much work can be stopped if SQL Server becomes unavailable or mangled, frequent backup and replication and/or clustering might be a good idea.

Configuration Manager needs, at minimum, a site server and site database instance (they can be in the same machine or VM instance) along with a component server (can also be combined with the site or database server in small installations). So far, we have three server instances that can be combined. The SQL Servers can't be mirrored, which bothered us. High availability is important here.

Configuration Manager sites consist of primary and secondary. Secondary sites are used as distribution points, so as to conserve bandwidth by multicasting through a hierarchy of sites. This also works well for multi-branch/multi-regional sites, where language or audit/compliance technique and reporting may be different, which is another reason that larger organizations will need to bury themselves in the System Center documentation to

NETRESULTS

Company	Microsoft
Product	System Center 2012: Orchestrator module, Configuration Manager module
Price	Standard edition: $1,323/2 OS environment Datacenter edition: $3,607, unlimited OSs
Pros	Orchestrator does a great job automating tasks in a multi-vendor virtualized environment; Configuration Manager eases the burden of application and OS life-cycle management
Cons	Requires considerable upfront planning, as well as hardware resources

understand the implications of how and where Configuration Manager sites are deployed.

After reading the considerations, we installed Configuration Manager using the Unified Installer. There's an option that extends the Active Directory schema to accommodate a container that allows trusted installation, but we didn't test this. The Site Server has roles that it takes on as storage points for configuration functionality. This might mean storage for Windows updates via Windows Server Update Services (WSUS), or as an anchor point for the remediation performed by Microsoft's Network Access Protection policies. There are any number of possible Configuration Manager roles.

Configuration Manager inventories, deploys, audits and maintains application instances, and operating system instances and their licenses — and is largely incapable of doing this for non-Windows platforms, unlike the increased heterogeneity of Orchestrator. However, if you're using Windows in a big way, Configuration Manager can discipline the deployment of apps and OS instances, while making the work much simpler than manual alternatives.

There are several stages in a device's life cycle where Configuration Manager comes into use. Windows operating systems along with applications payloads are brought into life onto bare metal. A Windows-based Configuration Manager agent then is used to manipulate the device, either by push or pull commands for information. Windows Mobile 6+, Symbian Belle phones, certain Windows embedded systems versions, and mobile devices that use the Exchange ActiveSync API (Apple iOS 4+, certain versions of Android) can be configured and managed through their life cycles, too.

Pushing operating systems

There are several operating systems deployment methods available with Configuration Manager that we found compelling. First, one finds a suitable image as a payload. You can capture one, or use a converted ISO image. It would be good to use one that has needed drivers, or even the right software load, so that you can do everything in a single step, subject to localization, customization and so forth. We're used to doing that in our labs.

The next step is to choose a distribution method. There's good-old PxE (Pre-boot eXecution Environment), which uses Windows Deployment Server. Indeed, you can use PxE without Configuration Manager at all, subject to licensing constraints and local implementation. Configuration Manager adds its value by allowing a RemoteInstall folder to be built, so that images can be rotated in and out of a centralized distribution point, where one might normally stage operating system deployments onto new or retrofit hardware.

We tested this method, and it worked for our test Windows 7 Professional instance. We used the WDS, made an IPv4 local network, configured the RemoteInstall folder and resource payload, did the WDS configuration work (simple enough), and booted the image onto a Lenovo T520 test machine.

It's also possible to make a boot CD/DVD or flash drive that redirects a similar link to the WDS configuration to make a machine swallow the desired operating system payload, but we didn't test this. So as far as we know, it could be used for non-Windows instances.

Making the inventory comply

Software apps, content and updates are distributed in similar ways, but System Center 2012: Configuration Manager can also create objects of information regarding inventory and states through a metaphor called Collections. Collections are groupings of users, or devices (not both). Data is collected once (or simply accumulated in counts) or is checked in intervals. Microsoft warns against querying "global" information in intervals, as this spawns a huge, and potentially useless, event. Through the collections, we could tabulate items set for compliance. Compliance means inventing, then checking the existence, or through a custom script, the state of an object — perhaps an application. We tested with a rudimentary example that used a built-in check box, of calling upon the client's Windows Installer file existence, in our case, Windows Office 2010 that was installed on our Lenovo T520 notebook. It was more sophisticated, and customized scripts can be deployed.

Where machines can tell their power state, one could also conceivably test power settings for machines. This could be interesting in terms of Carbon Trading compliance, but we only pay a pittance for our coal-powered electricity in Indiana, so we didn't mess with it.

Reporting requires SQL Server Reporting, and many queries of inventory, compliance and general activity logs were pretty easy. We could also see how the tables could be modified to make things look perfect, and so from an auditing perspective, auditors will need to note that we could export, manipulate and reimport tables to make them look crystal clear — but you'll need to be a good database administrator to know how. If we played by the rules, the reports were actually both simple to use, and with a few annotations, simple to understand, even for a CIO.

Summary

Configuration Manager, like Orchestrator, requires considerable planning, but can be started in at a simple level. Successful implementations will take an investment in the time, energy and resources of high-level systems personnel to reap benefits. It's highly sophisticated, and dives very deeply into a strongly Windows-based system. Its application into a small/midsize organization may be helpful, but larger organizations will find its depth very useful. ■

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How we did it

We initially attempted to implement System Center 2012 modularly, which is almost impossible, so we used the Unified Installer after reading the salient documents for each module, then installed each module into its own VM, combining SQL Server resources where necessary. We recommend that up to four SQL Server instances may be necessary for protecting all of the modules.

We controlled the test of the modules in our lab, and deployed instances both locally into Dell 1950 servers (2-CPU/8-core, 12GB memory, lots of disk) connected into a switch, then to our network operations center at nFrame. At nFrame, we housed two HP servers, a DL580 (16-core, 32GB, big disk), a DL585 (16-core, 32GB, big disk) and several other, smaller servers that shared a Compellent hefty SAN system that were all interconnected with an Extreme switch.

We exercised the basic functionality of each module against our Windows Servers, and VMware, XenServer and KVM-based hardware using both Windows 7 virtual machines, and Lenovo T520 notebooks (2-core/i5 with 8GB of DRAM and 300GB drives) in a Gigabit Ethernet switched Ethernet environment.

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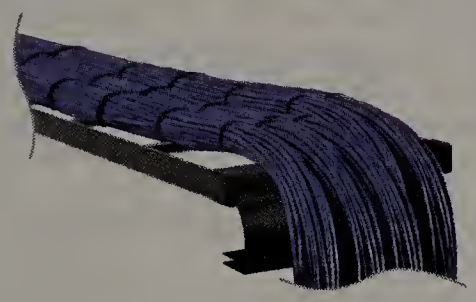

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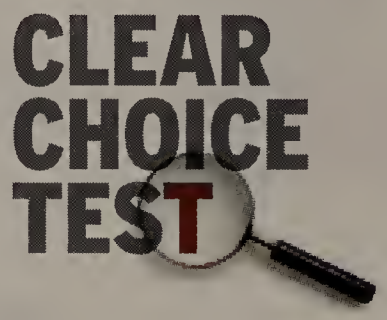
Microsoft raises bar with SQL Server

Business intelligence and uptime features are impressive, but beware of costs

BY BARRY NANCE



While SQL Server 2008 was little more than a service-pack level upgrade, the 2012 version of Microsoft's database has a boatload of new features and delivers solid performance improvements.

Specifically, SQL Server 2012 offers Business Intelligence to help companies analyze business data, an AlwaysOn availability and uptime enhancement, Contained Databases for managing databases as a group and a quick-query tool called ColumnStore Index.

On the flip side, Microsoft's new licensing model will probably cost enterprises more money. And database administrators should be aware that taking full advantage of these new features will require additional network bandwidth and will impose extra burdens on IT.

SQL Server 2012 comes in three versions: Standard, Business Intelligence and Enterprise, with most of the new features reserved for the Enterprise Edition. And Microsoft has replaced its per-CPU licensing model with a per-core model.

For earlier SQL Server versions, you bought one license per physical processor regardless of how many CPU cores it had. If you chose your server hardware smartly, you could buy eight CPU cores for the cost of one SQL Server license and save enough in licensing fees to pay for the new server. To license SQL Server 2012 for that same server, you'll need eight core licenses. The new core license fees are less than the previous per-CPU fees, but, if you do the math, Microsoft has conspicuously increased SQL Server's price.

Rundown of the new features

Business Intelligence: SQL Server 2012's Business Intelligence improvements essentially let users view a database as a spreadsheet. Users can program sophisticated spreadsheet formulas and reports that operate directly on database contents.

A user can, for example, program a new database report via these spreadsheet operations and then take a notebook computer running the new report (and connected wirelessly to the database server) into a meeting. The attendees can watch the report update in real time as database contents change.

Business Intelligence is a godsend for companies whose corporate policies allow (or encourage) users to program their own spreadsheets. However, BI is anathema for companies that want to control ad hoc manipulation of databases — and the decisions that ensue from such manipulation.

In companies that embrace Business Intelligence, network and database administrators will see their workloads blossom. As we tested Business Intelligence in the lab, we saw this effect firsthand. Extrapolating our results across a large company, we estimate that the unbridled use of SQL Server 2012's Business Intelligence feature will likely increase administrator workloads by 10% to 25%.

AlwaysOn: Think of AlwaysOn as database mirroring in which the secondary (substitute) server can be an active, already-in-use SQL Server 2012 instance. The secondary server takes up the slack when a primary instance fails. Because the substitute server may not have the horsepower of the primary server and because it's also doing other work, response times may slow dramatically. But the application blithely carries on without suffering an outage. The mirror doesn't have to be a standby server that sits idle until failover time.

Earlier SQL Server versions offered essentially two approaches to high availability. You could configure SQL Server to perform log shipping, which instructed the failover server to replicate the primary server, or you could use clustering to cause a standby server to assume the role of primary server upon failover.

Both approaches have their limitations. Failing over an individual database can take time, during which the database is unavailable. Cluster-based failover is costly for the extra server(s) that does no work until the primary server(s) fails.

SQL Server 2012's AlwaysOn feature borrows the concept of Database Availability Groups from Exchange Server 2010. AlwaysOn, however, implements the concept with a somewhat different architecture.

Unfortunately, AlwaysOn uses a great deal of bandwidth. In tests involving 50 clients feeding an Online Transaction Processing (OLTP) SQL Server 2012 database with an average 20 transactions per second, AlwaysOn's data replication and inter-server coordination more than doubled network utilization, from 22% to 47%.

SQL Server 2012 has other high availability enhancements. For the many applications that access multiple databases concurrently, SQL Server 2012 offers Availability Groups. You assign multiple databases to an Availability Group and, when a server dies, all the databases fail over as a cohesive unit.

Availability Groups are particularly useful for transferring database accesses from a primary site to a remote site, if a primary site suffers a catastrophic disaster. You can also set up multiple Availability Group assignments for a single SQL Server 2012 instance.

If disaster strikes, AlwaysOn will divide up the database retrievals and updates across the multiple servers you've designated in your disaster plan. A single database superserver can thus fail over to several lesser-horsepower machines. Your standby servers don't have to be expensive, idle-most-of-the-time copies of the primary.

The Availability Group concept worked well in the lab. When we "pulled the plug" on a database server, our simulated online transaction processing application kept running

NETRESULTS

Product	SQL Server 2012
Company	Microsoft
Price	Standard Edition: $1,793/core, or $898/server plus $209/client Business Intelligence: $8,592/server plus $209/client Enterprise Edition: $6,874/core
Pros	SQL Server 2012 is faster, offers greater availability/uptime and makes database migration simpler and easier
Cons	Business Intelligence could create workload issues, AlwaysOn increases network traffic dramatically, ColumnStore Indexes are read-only; lacks new administrative tools

normally, completely unaware that it was accessing a different server.

Note that you'll have to make separate arrangements for the application itself and for any other system components and data files that the application relies on. In that vein, be aware that there are other high availability mechanisms that protect more than just the database server. For example, CA's ARCserve High Availability can perform sophisticated failovers for all of an application's computing resources. It can restart a crashed background process (i.e., Windows Service), if that's the cause of the problem. And it offers push-button failover and failback for the highest possible level of availability, plus bandwidth tuning/throttling and data compression to use the network more frugally.

Another convenient, impressive and practical new SQL Server 2012 feature is replication to a read-only secondary. By copying database changes to the read-only secondary in a way that assures the integrity of related database contents in the secondary database, SQL Server 2012 makes backing up an active, in-use database painless and quick — you simply make periodic backup copies of the read-only secondary database, not the primary.

If the read-only secondary is on a separate server, you even avoid using database server CPU and memory during the backup process. Furthermore, read-only secondaries become excellent candidates as the basis for data analysis and reporting, even while the primary database is actively in use. We liked read-only secondaries a lot.

SQL Server 2012's new FileTable concept was somewhat less impressive, but only because we couldn't think of a good, practical use for it. FileTable associates an NTFS file system directory with a database table. Any file you put in the directory appears in the database, and SQL Server 2012 reflects in the database any changes you make to a file.

Backing up the database also backs up files in the associated directory. If you have ancillary data files that bear a critical relationship to the contents of a database and you want to back up the database plus the ancillary files as a consistent single unit, FileTable may be for you.

Contained Databases: Before SQL Server 2012, migrating a database meant much more than just copying database files. You also had to set up or at least synchronize database login user IDs, ensure that collation (i.e., the sort order to be used for each character set as well as the code page used to store non-Unicode character data) was configured the same for the two databases, verify compatibility levels, migrate scheduled jobs and do other tasks to manage database-related data not stored directly in the database files.

SCORECARD

Product	SQL Server 2012
Features (30%)	5
Performance (40%)	4
Ease of Use (20%)	3
Documentation & Installation (10%)	4
Total	**4.1**

Scoring key: 5: Exceptional; 4: Very Good; 3: Average; 2: Below Average; 1: Consistently subpar

SQL Server 2012's Contained Databases feature makes database migration a bit easier by storing the collation setting and the database login user IDs within the database. You no longer have to synchronize database login IDs between the old server and the new one. However, you still have to worry about other database-related configuration steps, such as setting up scheduled jobs on the new server.

ColumnStore Indexes: SQL Server 2012's ColumnStore Index stores data for columns you designate and then joins those database columns to give a read-only, column-based index into the data (traditional indexes are row-oriented, storing data for each row and then joining those rows to complete the index).

Microsoft claims ColumnStore Index speeds up data retrieval by a factor of 10. Our tests confirmed the performance gain, exhibiting at least 10x and sometimes much faster (12x, 15x and even 20x) data retrieval speeds.

The big drawback to ColumnStore Indexes is their read-only status, which makes them useful only for queries in data warehouses with huge databases. OLTP databases and ColumnStore Indexes are, by their nature and almost by definition, mutually exclusive.

Even in a data warehouse milieu, frequently loading new data into read-only tables can be quite a hassle. Microsoft describes a workaround for the read-only problem by having you switch out table partitions in your data warehouse tables. If you are desperate for better performance, the workaround might be acceptable. Alternatively, you might opt to use SQL Server 2012's read-only secondary feature to manage the database copies you use for analysis and reporting.

Speaking of indexes — SQL Server 2012's improvements in online re-indexing are a welcome relief to administrators who from time to time have to re-index a database. SQL Server 2005 touted an online re-indexing feature, but the earlier version's fine print mentioned that the indexing didn't work for all data types (the problem types were varchar(max), nvarchar(max), varbinary(max) and XML). SQL Server 2012 removes the restriction so that administrators can have true online index maintenance for applications that are supposed to be online and available 24/7.

We don't want to appear excessively greedy, but next we'd like to see in SQL Server an ability to re-index individual table partitions online. We have a few other issues, as well. Missing from SQL Server 2012 is any significant use of PowerShell, which helps customers automate tasks through the use of commandlets. Other than a few commandlets for AlwaysOn and some backup/restore functions, SQL Server 2012 has no reliance on PowerShell. With the emphasis Microsoft is putting on PowerShell, we found the omission disappointing.

Ironically, the SQL Server 2012 installation process uses PowerShell. As with virtually every other current version of a Microsoft server product, Windows PowerShell 2.0 is a requirement for deploying SQL Server 2012.

We were also disappointed by the lack of improvements to SQL Server Management Studio (SSMS). Yes, Microsoft has given SSMS a Visual Studio 2010 makeover, which means you get better snippet management as well as integration with Team Foundation Server, but SQL Server 2012 offers no new DBA management tools. For instance, we would have liked to have seen better multi-server management and reporting features, as well as some use of PowerShell in SSMS.

Conclusion

SQL Server 2012's many new features (some of which, like programming language enhancements, we haven't even touched on) are a good reason to upgrade. There's something to like for nearly everyone. Just be aware that the new version costs more, will likely increase administrator workloads and might use quite a bit more bandwidth than earlier SQL Server versions. ■

Nance runs Network Testing Labs and is the author of "Introduction to Networking, 4th Edition" and "Client/Server LAN Programming." His email address is barryn@erols.com.

Read how we conducted our test. **tinyurl.com/7528nju**

NETWORKWORLD

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BACKSPIN | BY MARK GIBBS

Just linking could get you 10 years in jail

SO YOU live in another country, say somewhere in Europe, maybe, oh I don't know, England. In your perambulations around the Internet you find a load of stuff that interests you and you think "Hmmm, other people might be interested in this, I'll share it online."

You build a website that just lists the links ... and links are the only thing on the site ... and you turn it loose.

Next thing you know, your domain name is seized by the U.S. Immigration and Customs Enforcement (ICE) and the various United States government agencies are trying to extradite you so you can be prosecuted for "violations of Federal criminal copyright infringement laws," a crime that could send you to prison for 10 years!

Sounds ridiculous? Well, that's exactly what has happened to Richard O'Dwyer, a 24-year-old British citizen who is a student at Sheffield Hallam University in England.

In 2007 O'Dwyer set up a website, TVShack.net, listing links, nothing else, no copyrighted materials at all, and included the disclaimer "TV Shack is a simple resource site. All content visible on this site is located at 3rd party websites. TV Shack is not responsible for any content linked to or referred from these pages." The site also noted that it was hosted in Sweden.

On June 30, 2010, ICE seized seven domains, including O'Dwyer's TVShack.net, for "violations of Federal criminal copyright infringement laws" and alleged the sites were "involved in the illegal distribution of copyrighted movies and television programs over the Internet."

Particularly telling was the seized sites were cited as "linking websites" providing "access or links to other websites where pirated movies and television programs are stored." In essence, the charges are for linking. Not for distributing pirated content, but for simply pointing to another site where pirated material might be found.

Richard O'Dwyer is accused by U.S. authorities of "violations of Federal criminal copyright infringement laws" for linking to sites that host pirated TV programs and movies.

What, I suspect, made The Man ("The Man" being U.S. authorities prodded into action by, no surprise, the Motion Picture Association of America) go after O'Dwyer was that he was making money from advertising on his site (U.S. authorities claim his site earned advertising revenue of something like $230,000 since January 2008).

What is totally insane about the infringement charge is O'Dwyer's site was just a list of links ... a list of links much like one that you might get from Google, Bing or Yahoo. Will any of those companies be hauled into court for the same charge? I think not.

Should O'Dwyer be extradited to the U.S. (in March this year the U.K. home secretary very unwisely approved extradition, but the case is currently in appeal) and, found guilty, the consequences will be biblical. Tweet or post to Facebook a link to some site that is considered to infringe someone's copyright, and you could find yourself and/or your company liable.

This case is attracting a lot of attention not just because of the potential for a real miscarriage of justice, but because it will have a profound effect on free speech and openness. A major campaign by Demand Progress and supported by Wikipedia is underway to pressure the U.K., through public opinion, to not allow extradition.

I can't encourage you strongly enough to sign the petition ... if O'Dwyer is prosecuted and found guilty, we all lose. ■

Gibbs is in Ventura, Calif. Voice your support at backspin@gibbs.com.

LAYER 8 | BY MICHAEL COONEY

FTC to revisit infuriating robocallers

WHILE THERE are legal measures in place to stop most robocalls, the use of the annoying automated calling process seems to be on the rise. Personally, I have received four such calls in the past 48 hours — two from some company looking to book vacation cruises. Curiously that one uses a foghorn to answer the call when you pick up — a tactic I find can scare the crap out of me rather than intrigue me into staying on the line.

The Federal Trade Commission, which defined the rules that outlawed most robocalls in 2009, has taken notice of an uptick in these maddening calls, and on Oct. 18 will convene a summit in Washington, D.C., to examine the issues surrounding what even it called the growing robocall problem.

According to the FTC, the summit will be open to the public, and will include members of law enforcement, the telemarketing and telecommunications industry, consumer groups and the general public. The summit will focus on exploring what the FTC calls "innovations that could potentially be used to trace robocalls, prevent wrongdoers from faking caller ID data, and stop illegal calls."

"The FTC hears from American consumers every day about illegal robocalls and how intrusive they are," said FTC Chairman Jon Leibowitz in a statement. "We're ratcheting up our efforts to stop this invasion of consumers' privacy."

The agency, which says it has stopped billions of robocalls in the past couple of years, says a variety of technologies are making it easier for telemarketers to skirt or at least try to get around the law. The increased use of automated phone call systems that just blast away calls without first screening the Do Not Call registry is one of the main enabling technologies. The ability to operate such systems via the Internet and hiding or spoofing their location is another problem the FTC says is behind the increase.

According to the agency, nearly all telemarketing robocalls have been illegal since Sept. 1, 2009, and the only legal sales robocalls are ones that consumers have stated in writing that they want to receive. Certain other types of robocalls, such as political calls, survey calls and charitable calls remain legal, and are not covered by the 2009 ban.

The FTC says it targets high-volume offenders and looks for "choke-points" in the calling process to stop the largest number of illegal calls. To date, the FTC says it has brought 85 enforcement cases targeting illegal robocalls, and violators have paid $41 million in penalties. Indeed, since January 2010, the FTC has brought law enforcement actions, shutting down the companies responsible for more than 2.6 billion illegal telemarketing robocalls.

It seems they need to stop about 5 billion more to make an impact. ■

Have an opinion? Let me know: mcooney@nww.com.

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